



# High-Grade Gold in Japan

*“A Unique Opportunity, A Unique Strategy”*

[www.irvresources.com](http://www.irvresources.com)

January 17, 2020

IRV:CNX | IRVRF:OTC

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Some statements in this presentation contain forward-looking information (within the meaning of Canadian securities legislation), including without limitation statements as to the potential, through exploration work including drilling, to define a mineral resource. These statements address future events and conditions and, as such, involve known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the statements. Such factors include, without limitation, the ability to complete exploration activities including future drilling as currently contemplated, customary risks of the mineral resources exploration industry as well as Irving Resources Inc. (“Irving” or the “Company”) having sufficient cash to fund exploration activities, as well as other risks and factors mentioned in the continuous disclosure filings of Irving which can be found under its profile on the SEDAR website ([www.sedar.com](http://www.sedar.com)).

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Dr. Quinton Hennigh, the Company’s Technical Advisor and Director and a Qualified Person as defined by National Instrument 43-101, has approved the technical contents of this presentation.



## Capital Structure (January 2020):

Shares Outstanding: 53,393,994

Options Outstanding: 3,958,334

(Directors, Officers, Employees and Consultants)

Warrants Outstanding: 942,641

942,641 at C\$1.75 – November 26, 2020

Issued Shares – Fully Diluted: 58,294,969

Management/Directors (FD): 16.00%

Newmont Goldcorp: 6.96%

Cash: Approximately C\$8.0 M



**Akiko Levinson, President, CEO, Director** – Ms. Akiko Levinson has over 20 years of experience in the junior mining market including mining finance and ‘end-to-end’ rare earth mineral investment. Ms. Levinson was previously the President and a director of Gold Canyon Resources Inc. and is currently a director of Novo Resources Corp.

**Quinton Hennigh, Director and Technical Advisor** – Dr. Quinton Hennigh is an economic geologist with more than 25 years of exploration experience with major gold mining firms including Homestake Mining, Newcrest Mining and Newmont Mining. Currently, Dr. Hennigh is Chairman, President and director of Novo Resources Corp. and director of Miramont Resources Corp, TriStar Gold, Inc., Precipitate Gold Corp and NV Gold Corp.

**Douglas Buchanan, Director** – Mr. Douglas Buchanan, Q.C. is Senior Counsel and Co-Head of North American Infrastructure at Norton Rose Fulbright. Mr. Buchanan has extensive experience in the area of mergers and acquisition, project development and project finance, with emphasis on the natural resource and infrastructure sectors. His personal and business connections in Japan go back more than forty years.

**Kevin Box, Director** – Mr. Kevin Box is a Geographic Information Systems Analyst specializing in mineral exploration for over 14 years. Mr. Box is currently the GIS and Research Manager for Irving Resources and Novo Resources Corp.

**Haruo Harada, Director** - Mr. Haruo Harada graduated from Kagoshima University with a B.Sc. and M.Sc. in Science and has over 30 years experience in mineral exploration around the globe. Over the past three years, he has worked closely with management of Irving through his role as Director of Mitsui Mineral Development Engineering Co., Ltd., Irving’s lead contract engineering firm in Japan.

**Lisa Sharp, CFO** – Ms. Lisa Sharp, CPA, CGA has over 20 years of senior management experience in a variety of industries including mining, environmental technology and remediation. For the past 15 years, she has focused on public companies listed on the TSX, TSX Venture Exchange and AMEX.

**Hidetoshi Takaoka, Chief Mining Engineer, Irving Japan**- Mr. Hidetoshi Takaoka is a geologist with more than 40 years exploration and mining experience. Mr. Takaoka spent the majority of his time with Sumitomo Metal Mining Co. Ltd. (SMM) where he was instrumental in early exploration at Hishikari Mine, Japan and was responsible for the discovery of the world class Pogo Mine, Alaska.

**Takeshi Uemoto, Project Manager, Irving Japan** - Dr. Takeshi Uemoto holds a B.Sc and M.Sc. from Hiroshima University and a Ph.D. from the University of Western Australia. Dr. Uemoto has worked as senior exploration geologist for Gold Fields Australasia at its St. Ives and Agnew gold mines in Australia and prior to that as senior geologist for Mitsubishi Materials Corporation exploring for geothermal resources in Japan.

**Toshiyuki Goto, General Manager, Irving Japan** – Mr. Toshiyuki Goto is a mining engineer with 25 years experience in operations and development of Sumitomo Metal Mining Co. Ltd.’s Hishikari gold mine, the largest gold mine in Japan.



## Working in Japan

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Working in Japan is all about building relations and trust.

Irving is uniquely qualified to explore in Japan:

- Our team is mostly Japanese.
- Mitsui Mineral Development Engineering Co., Ltd. (“MINDECO”) is our lead contractor.
- Built a long-standing relationship with Japan Oil, Gas and Metals National Corporation (“JOGMEC”).
- Developed close connections with many Japanese mining houses.
- Established strong relations with the Japanese academic community.
- Earned a good report with Japanese government authorities.
- Developed excellent relations with local communities and forestry association.

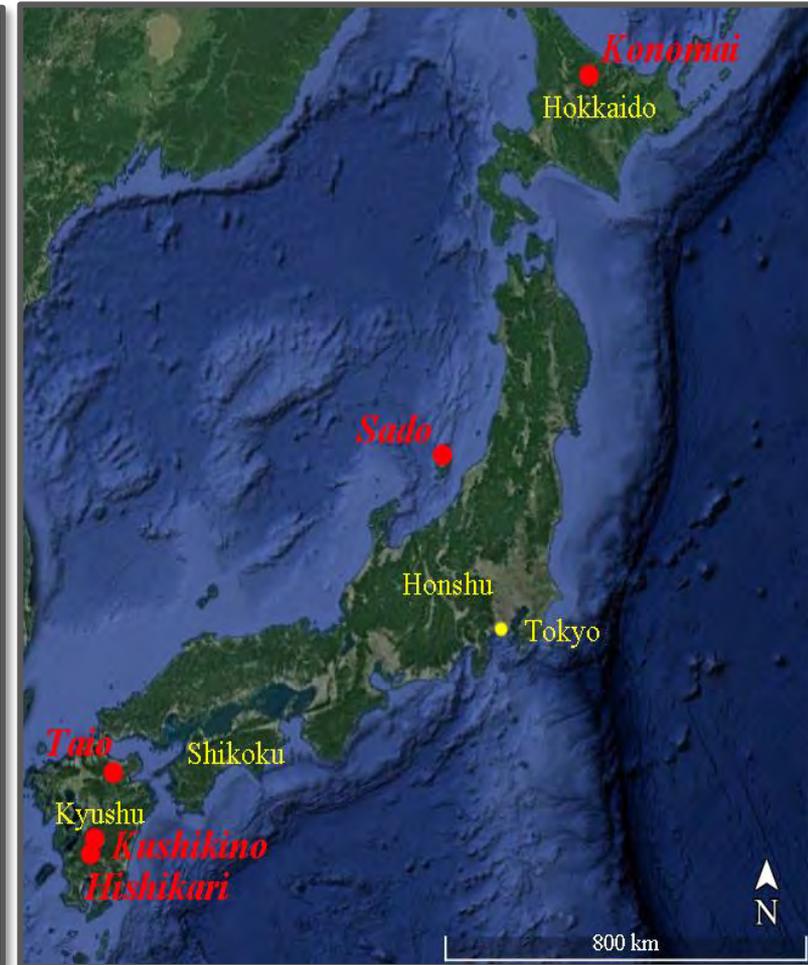




# Gold Mining in Japan

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- Since the beginning of the Edo period (1601), over 20 Moz of gold have been produced from Japanese gold mines...the top five being *Hishikari*, *Sado*, *Konomai*, *Kushikino* and *Taio*. All of these mines exploit high-grade epithermal deposits.
- *Hishikari* mine (Sumitomo Metal Mining Co. Ltd.), Japan's largest gold mine, has produced over 7 Moz Au (as of March, 2015) since its discovery in 1981. Current head grades are around 30 gpt Au. Considerable reserves and resources remain.
- Japan's second largest gold mine, *Sado* Kinzan (Mitsubishi Materials Corporation), produced 2.51 Moz Au and 74 Moz Ag over a continuous mine life of 388 years beginning in 1601. Grades averaged 5.2 gpt Au and 153 gpt Ag.
- *Konomai* mine (Sumitomo Metal Mining Co. Ltd.), Japan's third largest gold mine, produced 2.35 Moz Au and 38.6 Moz Ag between its discovery in 1915 and mine closure in 1973.





## Modern Gold Mining in Japan

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- Hishikari mine is the largest active gold mine in Japan. Gold production is about 225 Koz per year. A head grade of 30 gpt Au is achieved by ore sorting, optical ore sorters used for small pieces of rock and hand labor used for sorting larger pieces (*right*).
- Hishikari has no mill. High-grade ore is shipped to Sumitomo Metal Mining's smelters where it is utilized as smelter flux. Gold and silver are recovered during smelting and refining of copper resulting in high recoveries and low processing costs.
- Similarly, silica-rich gold ores ("keisan-ko") from the Akeshi mine (Mitsui Kushikino Kozan Co. Ltd.) and Kasuga and Iwato mines (Nippon Mining) are utilized for smelter flux.
- The Kushikino mine complex (Mitsui Kushikino Kozan Co. Ltd.) is the only operating gold mine utilizing a CN mill for processing. Gold-bearing industrial waste and low grade ore from Hishikari are also treated at this facility.





# Modern Gold Mining in Japan

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- Japan is an environmentally conscientious country. Although mining is still active, it must be conducted in the utmost responsible manner. Tolerance for large open pit mining and commensurate milling complexes and tailings dams is low.
- Hishikari is an underground mine with a very small surface footprint (*upper right*). Ore is shipped offsite and waste rock is either returned underground or crushed and used for road aggregate. This is the ideal Japanese mine.
- Sumitomo Metal Mining Co. Ltd. has done an exquisite job reclaiming the Konomai mine site to its native state (*lower right*). Such responsibility is what the Japanese people expect from modern mining companies.





# Smelter Flux Industry in Japan

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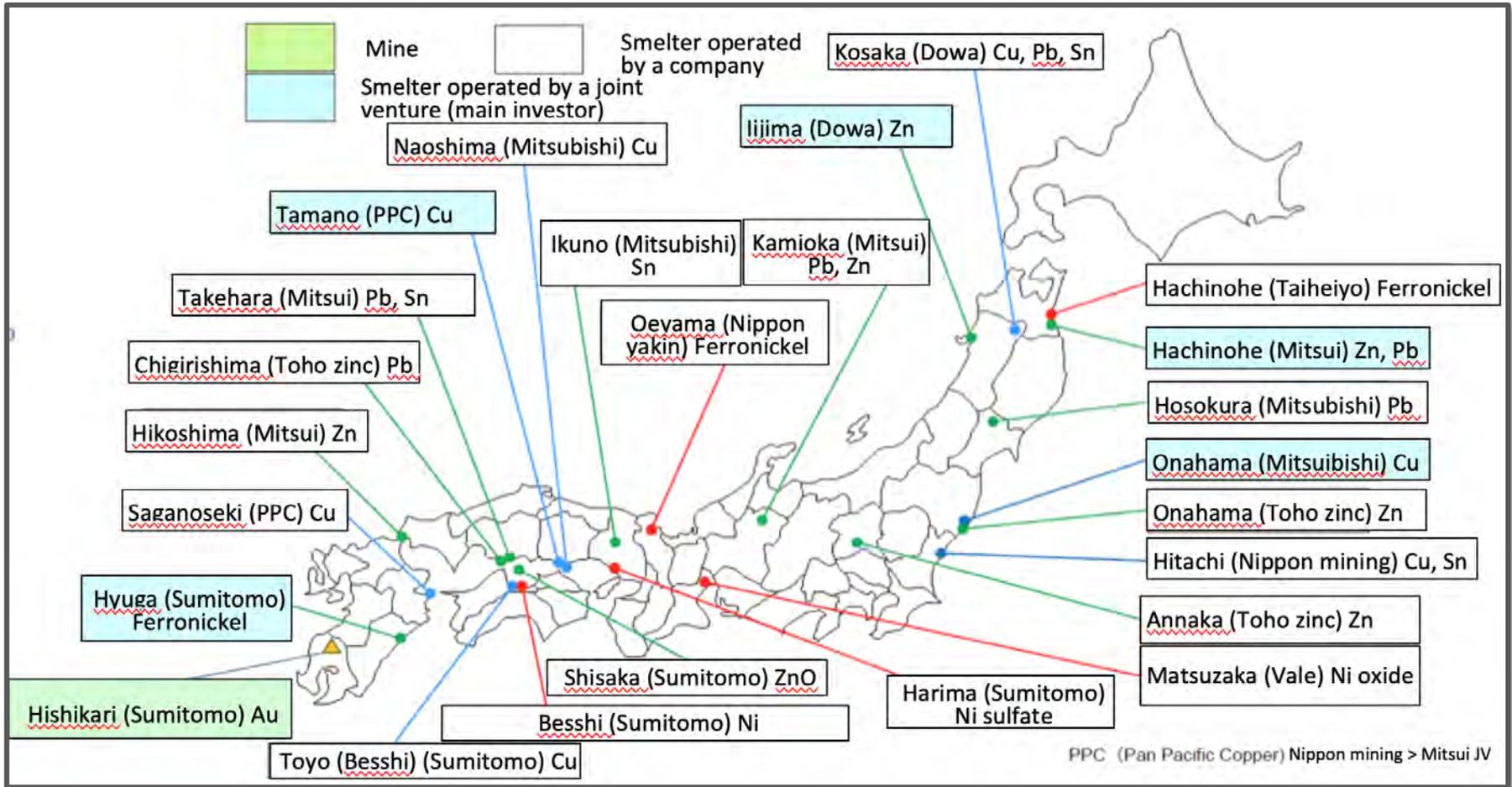
- Mining silica-rich gold ores and using them for smelter flux has a very long history in Japan.
- Each year, Japanese smelters require many hundreds of thousands of tonnes of silica flux.
- Mitsui, Sumitomo Metal Mining, Sumitomo Corporation, Nippon Mining (JX), Mitsubishi, Dowa and Toho Zinc operate smelters.
- Silica flux from Japanese gold mines (Hishikari, Akeshi, Kushikino) is currently used in some smelters. Others rely on silica from various other domestic and international sources.
- Demand for new sources of silica-rich gold ores is strong.





# Smelters in Japan

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**Irving recognizes the sensitivity of mining gold in Japan and has developed a strategy to honor this. Criteria Irving uses to select exploration targets include:**

- **High-silica, precious metal-rich veins that are suitable as smelter flux. No milling will be required.**
- **Deposits with low sulfur and deleterious elements including As, Sb and Hg, thus making them environmentally friendly and suitable as smelter flux.**
- **Deposits that will have a small surface footprint when mined.**
- **Ideally near shipping facilities enabling easy transport to Japanese smelters.**
- **Low impact on communities, cultural heritage and environmentally sensitive areas.**

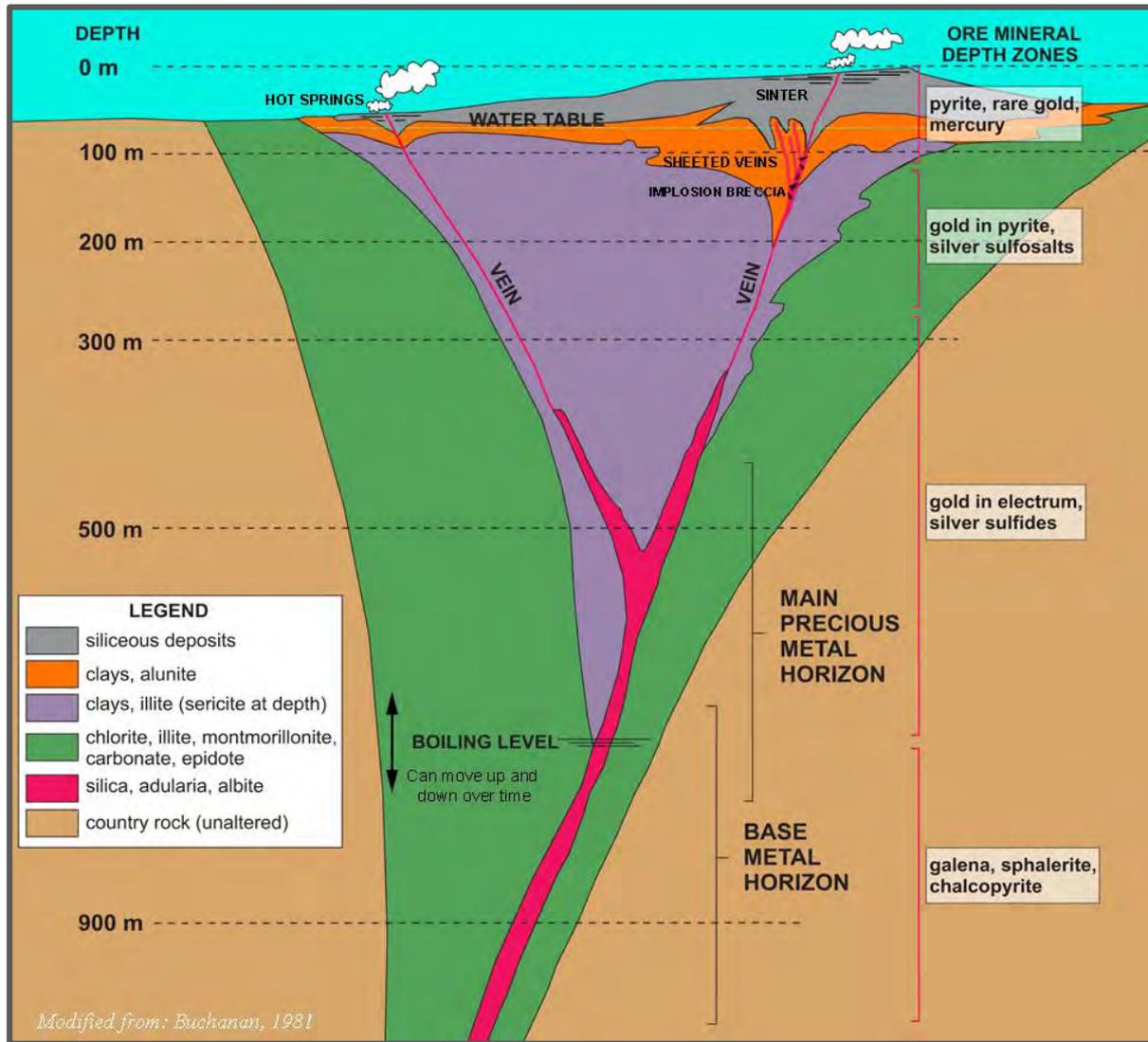


# Low Sulfidation Epithermal (“LSE”) Veins

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This is the classic hot spring epithermal vein model in which gold and silver precipitate in response to boiling as geothermal waters rise toward surface (*right*).

Deposits of silica (sinter) and clay form at surface such as at Yellowstone Park, USA (*below*).

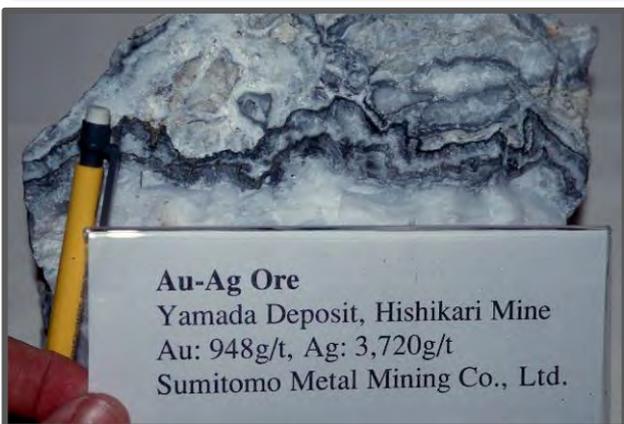




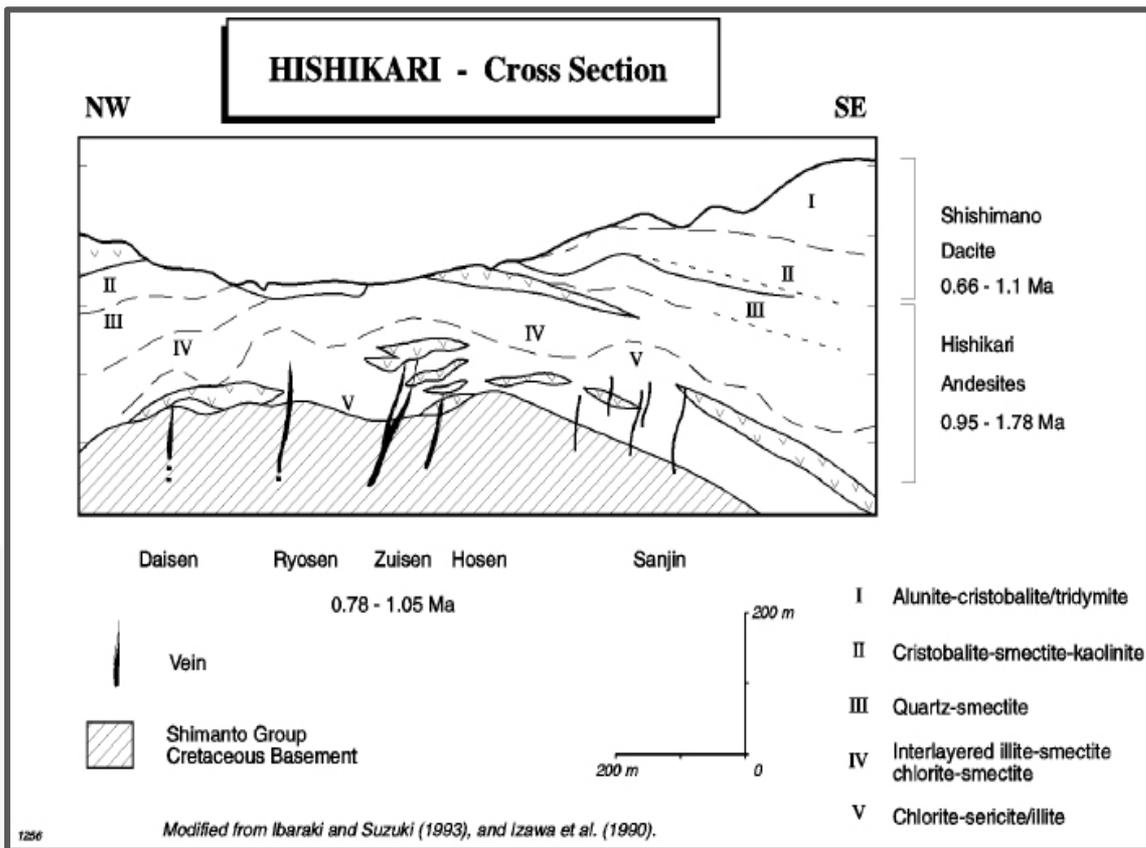
# Hishikari

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- At Hishikari, veins preferentially occur near a major unconformity between Cretaceous sedimentary rocks and overlying Tertiary volcanic rocks (*right*). Extensive clay alteration is present at surface.
- Veins locally bear abundant ginguero, banded silver sulfosalts, and electrum (*below*).



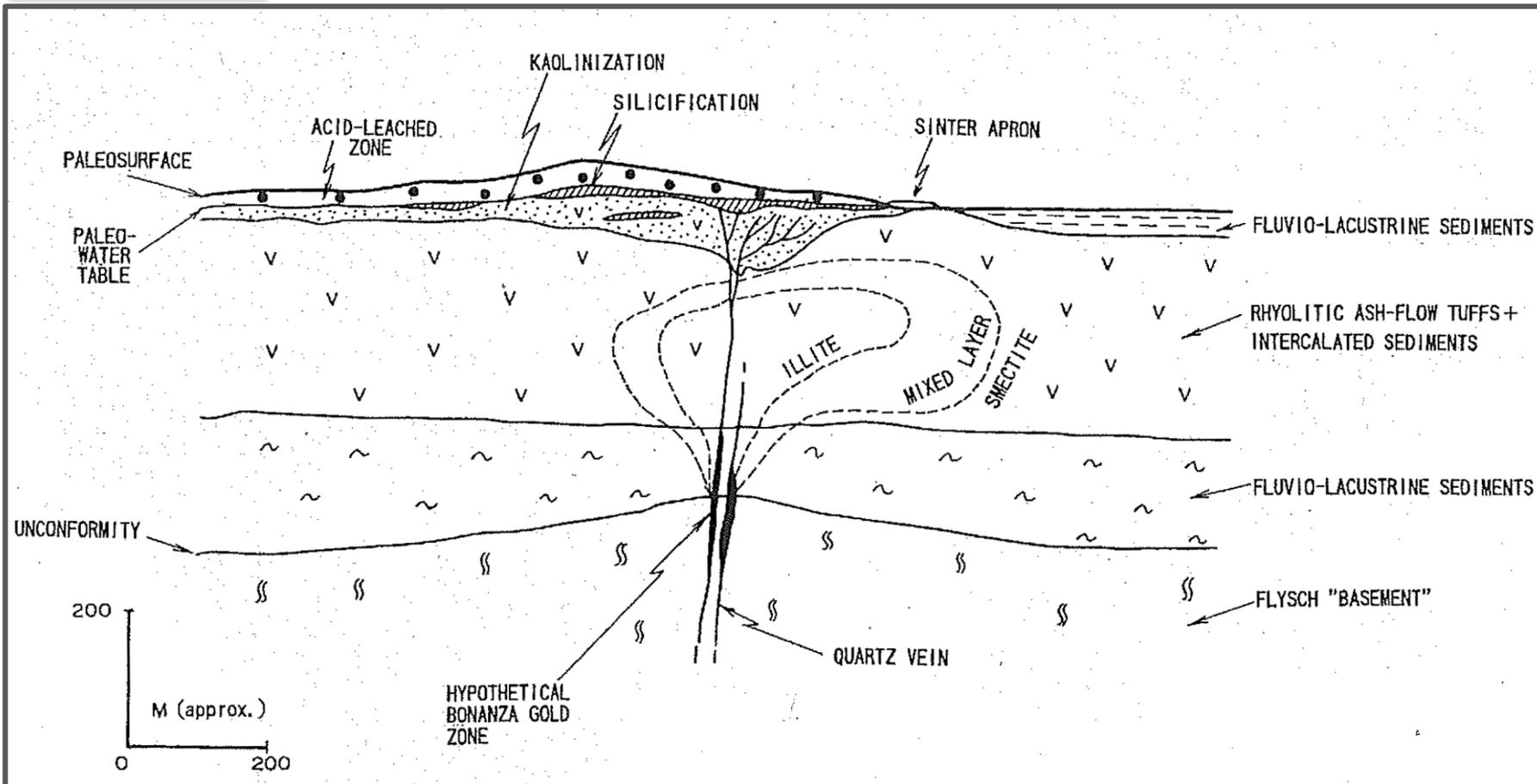
**Au-Ag Ore**  
 Yamada Deposit, Hishikari Mine  
 Au: 948g/t, Ag: 3,720g/t  
 Sumitomo Metal Mining Co., Ltd.





# Hokkaido Model

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Sillitoe's Model for exploration in Hokkaido based on Hishikari.



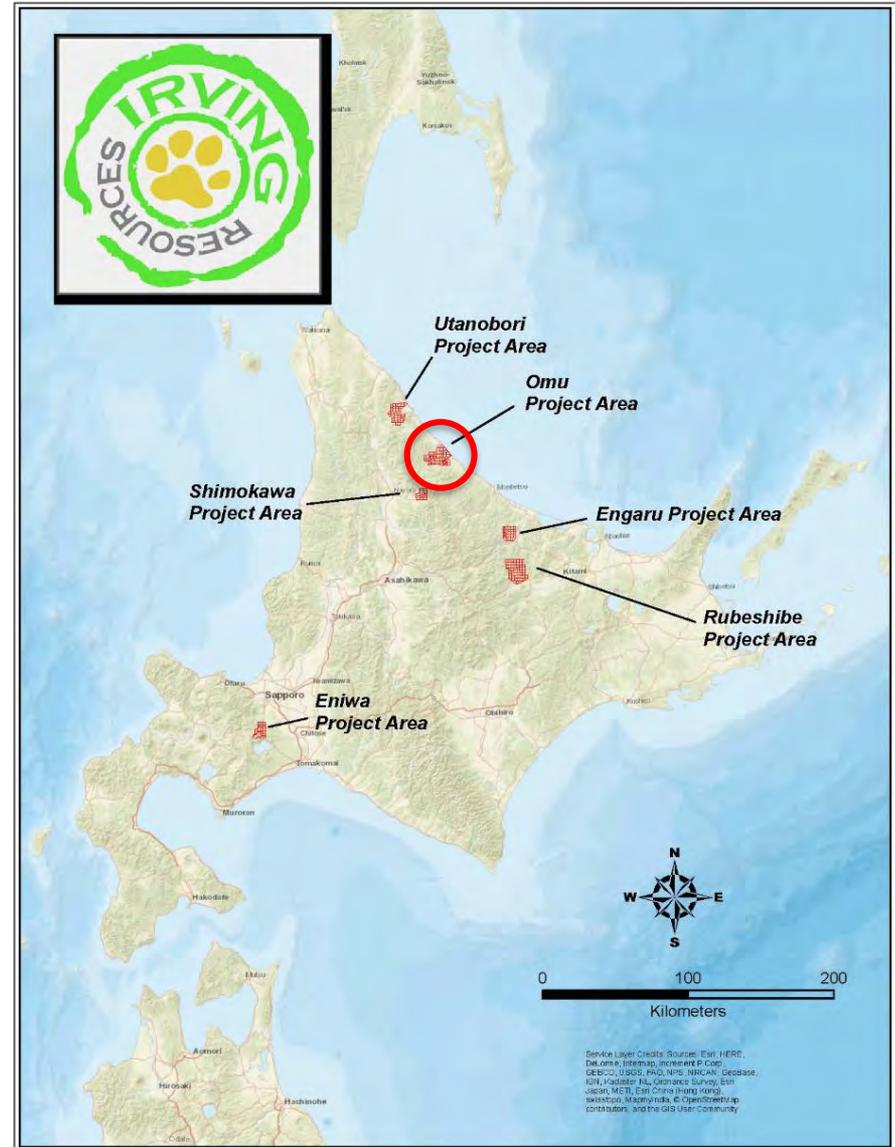


# Irving's Omu Project

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Most of Irving's recent exploration efforts have focused on Omu including:

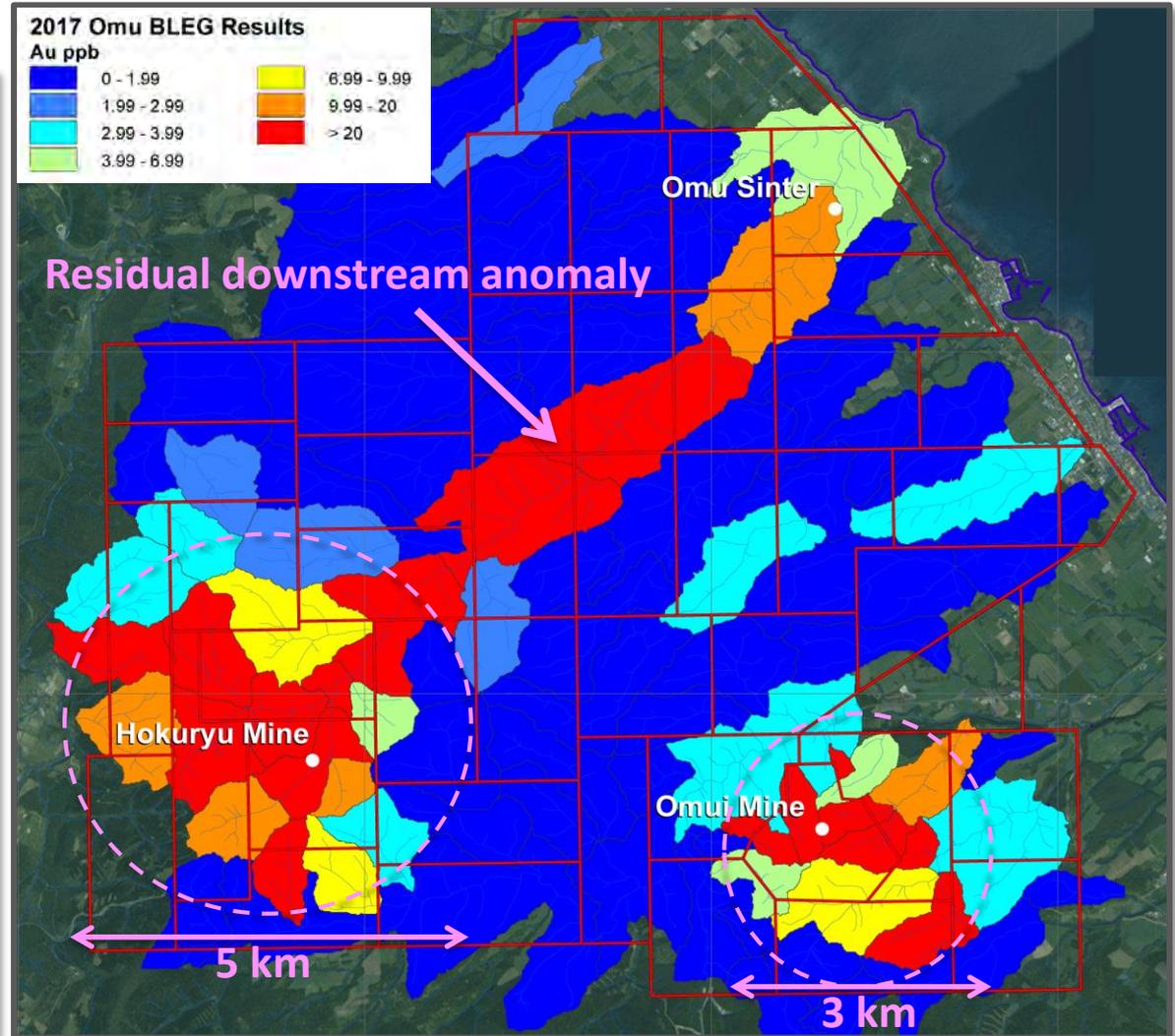
- Specialized stream sediment sampling (BLEG - bulk leach extractable gold) to identify mineralized areas.
- Close-spaced gravity measurements to help evaluate the structural framework of the hydrothermal "plumbing" system at Omu.
- Airborne (drone-based) magnetics to help evaluate structure and identify areas of hydrothermal alteration.
- Soil sampling over the Omui Mining Right and surrounding prospecting applications to help define anomalies for drill targeting.





## Gold:

- Both the Omu and Hokuryu historic mining areas are well defined by BLEG gold results.
- Gold anomalism extends to areas well east and southeast of the Omu mine site.
- Gold anomalism covers a vast area surrounding the Hokuryu mine.

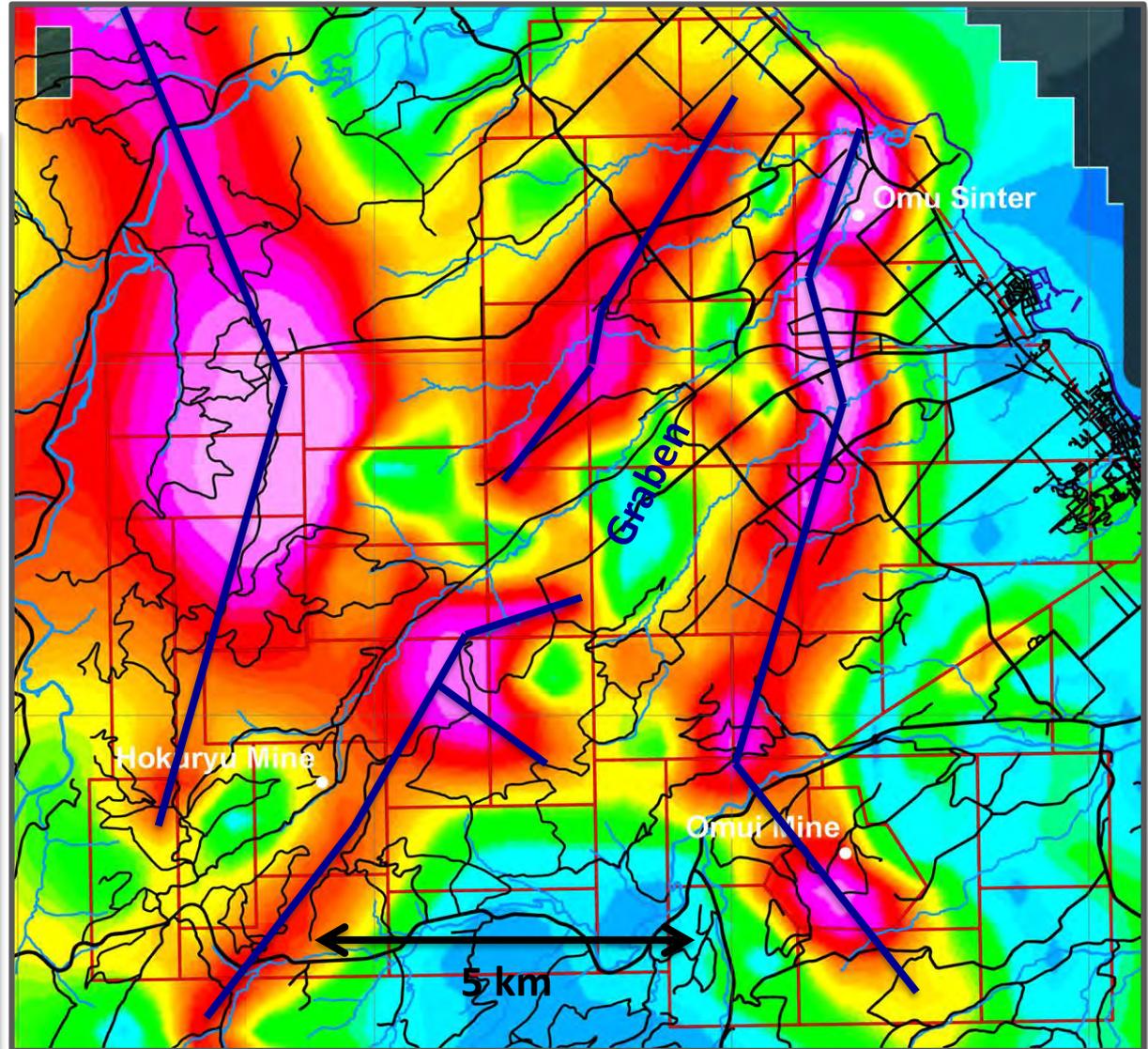




# Gravity Results

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- Bouguer horizontal gravity gradient clearly highlights major fault structures, ones that likely control the “plumbing” of the hydrothermal systems at Omu.
- Graben-bounding structures are evident. Note that Omui mine and the Omu sinter are connected along faults defining the eastern margin of the graben. Hokuryu sits astride faults defining the western margin.





## Drone-based Magnetics

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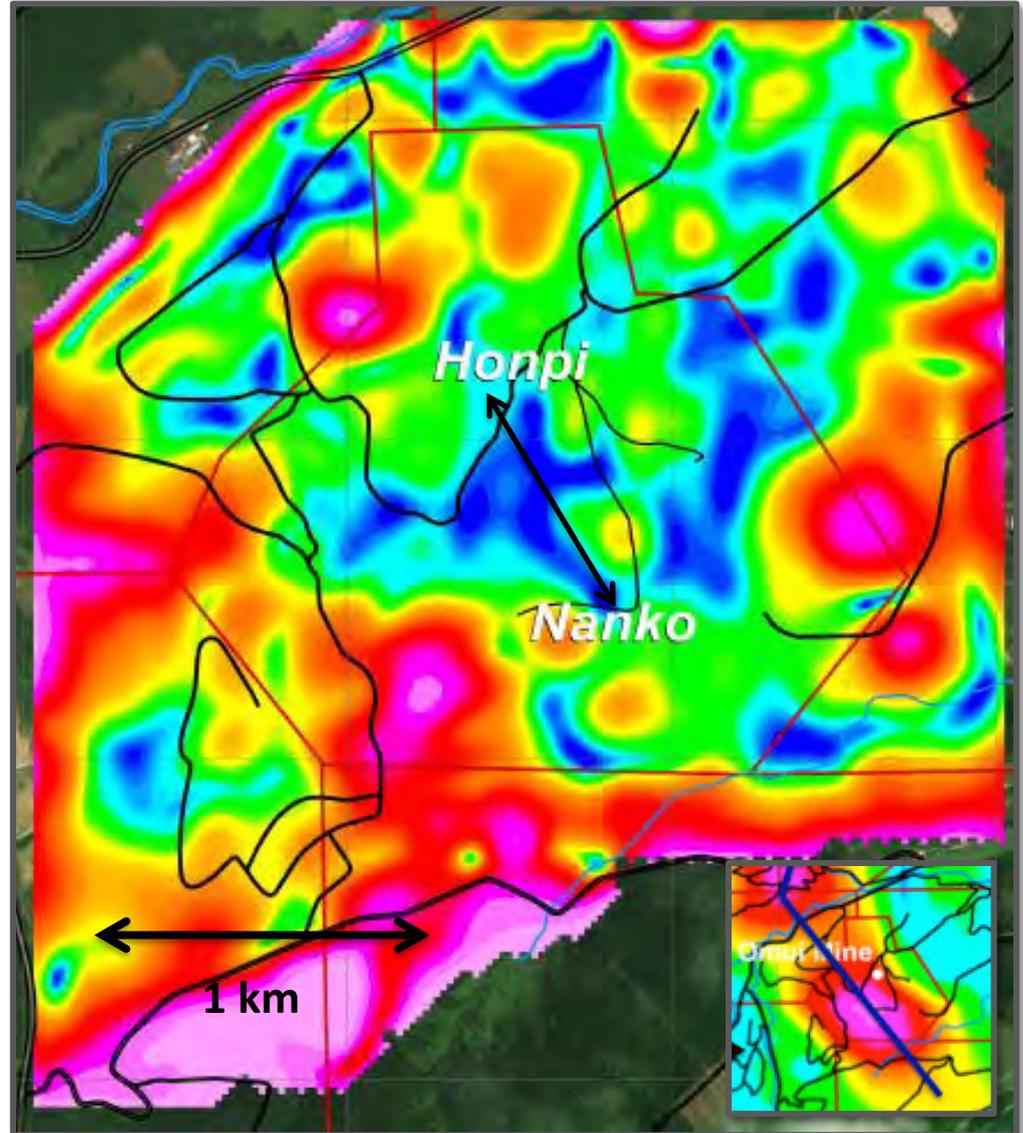


- After recognizing the challenge of undertaking ground-based magnetics surveys in dense bamboo, the decision was made to develop a drone-based magnetics system in early June, 2017.
- By September, MINDECO completed engineering and construction of a drone-based magnetics system. Surveys were conducted at Omui mine site and the Omu sinter in October.



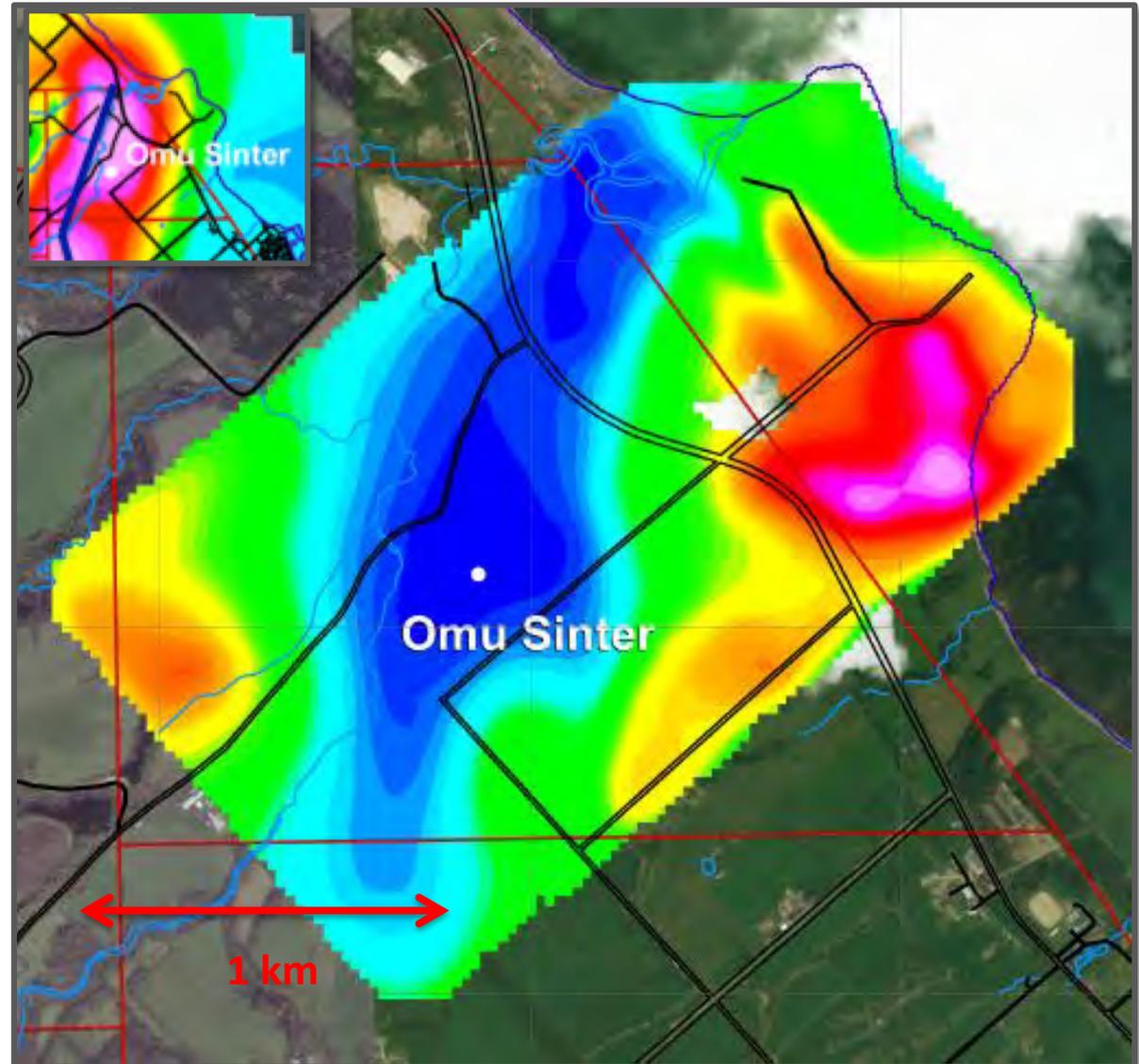


- At Omui mine site, a plot of magnetic analytic signal shows a complex network of low magnetic intensity (blue) where hydrothermal alteration has obliterated traces of magnetite in volcanic rocks, a possible indication of vein systems at depth.
- Note, the northwest-trending zone of low magnetic intensity extending from the Nanko prospect through the historic Honpi mine site. This is parallel to a prominent gravity gradient highlighting a graben-bounding fault underlying this area (lower right).





- At Omu sinter, a plot of residual magnetic intensity shows a profound north-northeast trending zone of low magnetism (blue) where hydrothermal alteration has obliterated traces of magnetite in volcanic rocks. Irving views this zone as a robust target prospective for high-grade epithermal vein mineralization.
- Note, this zone is coincident with a prominent gravity gradient highlighting a graben-bounding fault underlying this area (upper left).



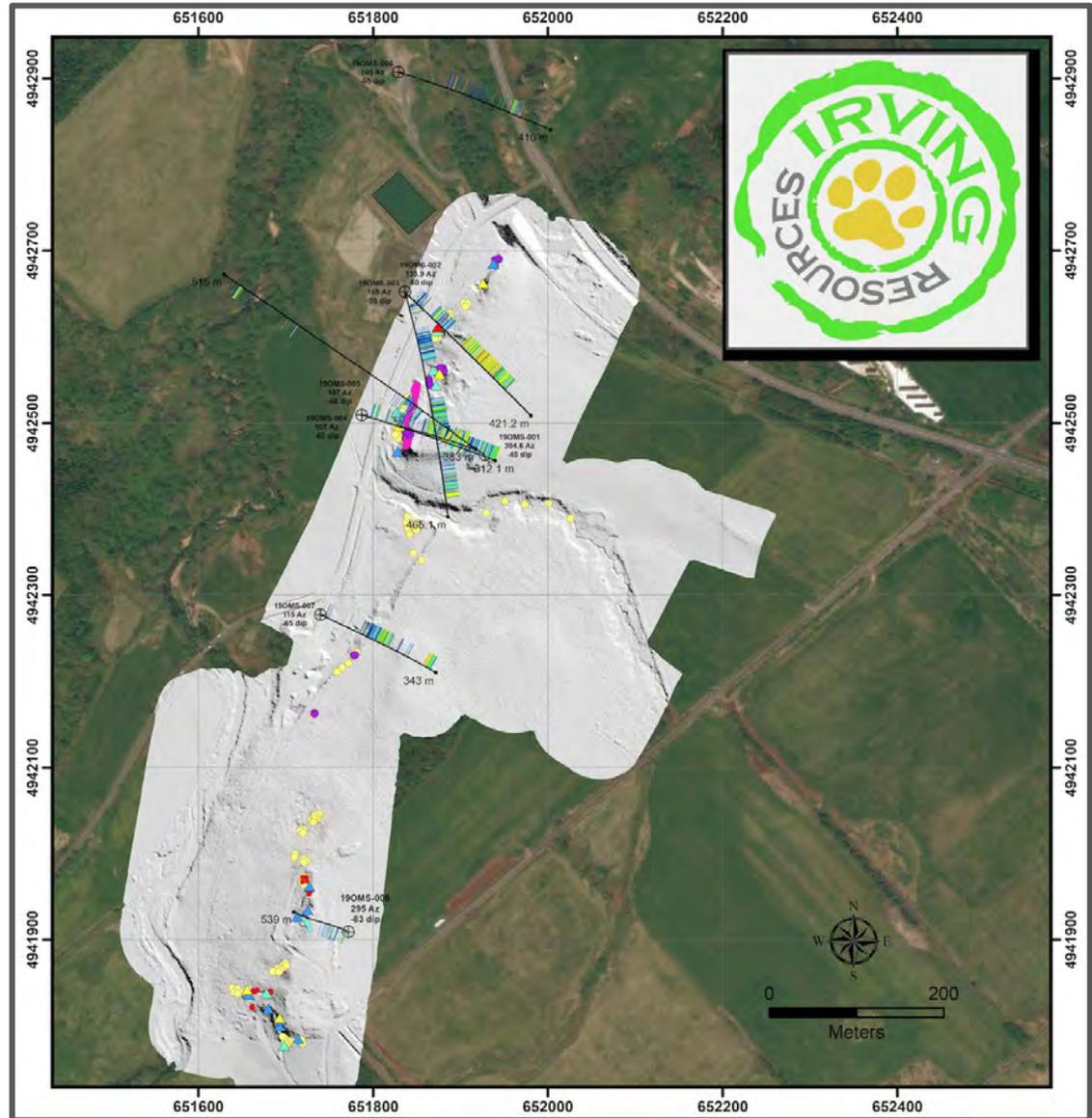


# Omu Sinter Drilling

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Between mid-March and late July, 2019, Irving completed eight diamond drill holes at Omu Sinter targeting high-grade veins under the sinter terrace.

Hole 19OMS-002 encountered 0.32 m grading 118.5 gpt Au and 1,410 gpt Ag, a stellar start for a previously unexplored hot spring system.





# Omu Sinter Drilling

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Hole	From (m)	To (m)	Length (m)	Au (gpt)	Ag (gpt)	Au eq (gpt)	Ag-to-Au ratio
<b>19OMS-001</b>	61.20	62.66	1.46	<b>5.15</b>	<b>13.0</b>	<b>5.31</b>	2.5
<i>including</i>	61.90	62.12	0.22	<b>10.20</b>	<b>31.9</b>	<b>10.58</b>	3.1
<b>19OMS-002</b>	183.75	191.92	8.17	<b>5.40</b>	<b>105.9</b>	<b>6.68</b>	19.6
<i>including</i>	184.39	185.72	1.33	<b>29.77</b>	<b>575.7</b>	<b>36.71</b>	19.3
<i>including</i>	184.93	185.25	0.32	<b>118.50</b>	<b>1410.0</b>	<b>135.49</b>	11.9
<b>19OMS-003</b>	356.10	357.40	1.30	3.65	27.5	3.98	7.5
<b>19OMS-004</b>	177.59	178.37	0.78	<b>1.85</b>	<b>444.0</b>	<b>7.20</b>	240.0
<b>19OMS-005</b>	308.27	310.30	2.03	<b>12.92</b>	<b>44.1</b>	<b>13.45</b>	3.4
<i>including</i>	308.93	310.30	1.37	<b>17.80</b>	<b>59.4</b>	<b>18.52</b>	3.3
<b>19OMS-006</b>	136.50	139.50	3.00	<b>1.18</b>	<b>656.3</b>	<b>9.09</b>	556.2
	138.50	139.50	1.00	<b>2.57</b>	<b>1570.0</b>	<b>21.49</b>	610.9
<b>19OMS-007</b>	304.10	310.10	6.00	0.73	159.3	2.65	218.2
<i>including</i>	304.10	305.10	1.00	<b>1.35</b>	<b>686.0</b>	<b>9.62</b>	508.1
<b>19OMS-008</b>	5.70	7.70	2.00	1.04	16.4	1.24	15.8

$Au\ eq\ (gpt) = Au\ (gpt) + Ag\ (gpt)/83$



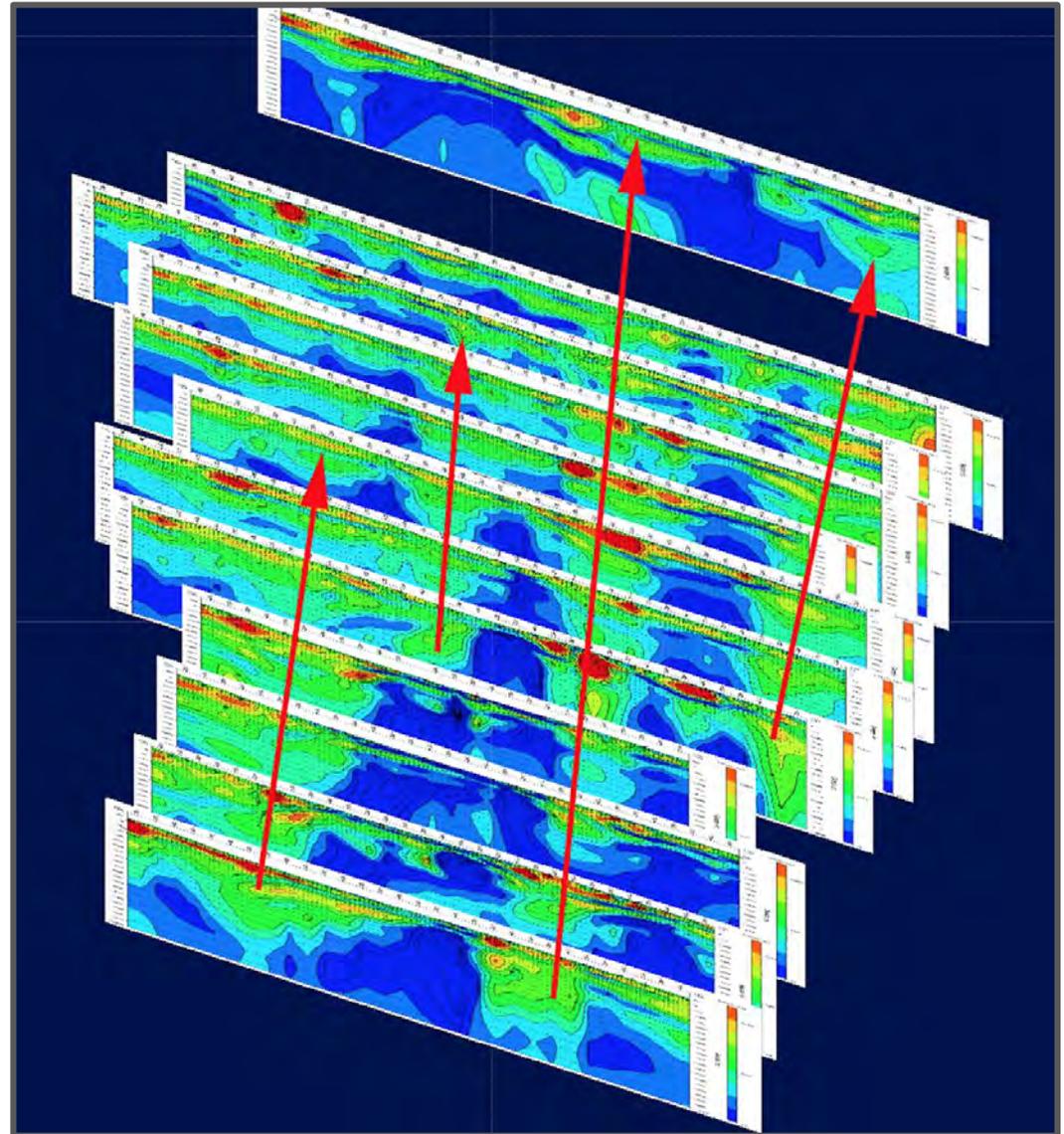
# Omu Sinter CSAMT

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Irving and Newmont undertook a controlled source audio-magnetotelluric (“CSAMT”) survey over Omu Sinter between June and July, 2019.

Resistivity clearly shows the structural “plumbing” underlying the extinct hot spring. Irving’s initial drilling was not optimal given this survey was completed after the first eight holes were finished.

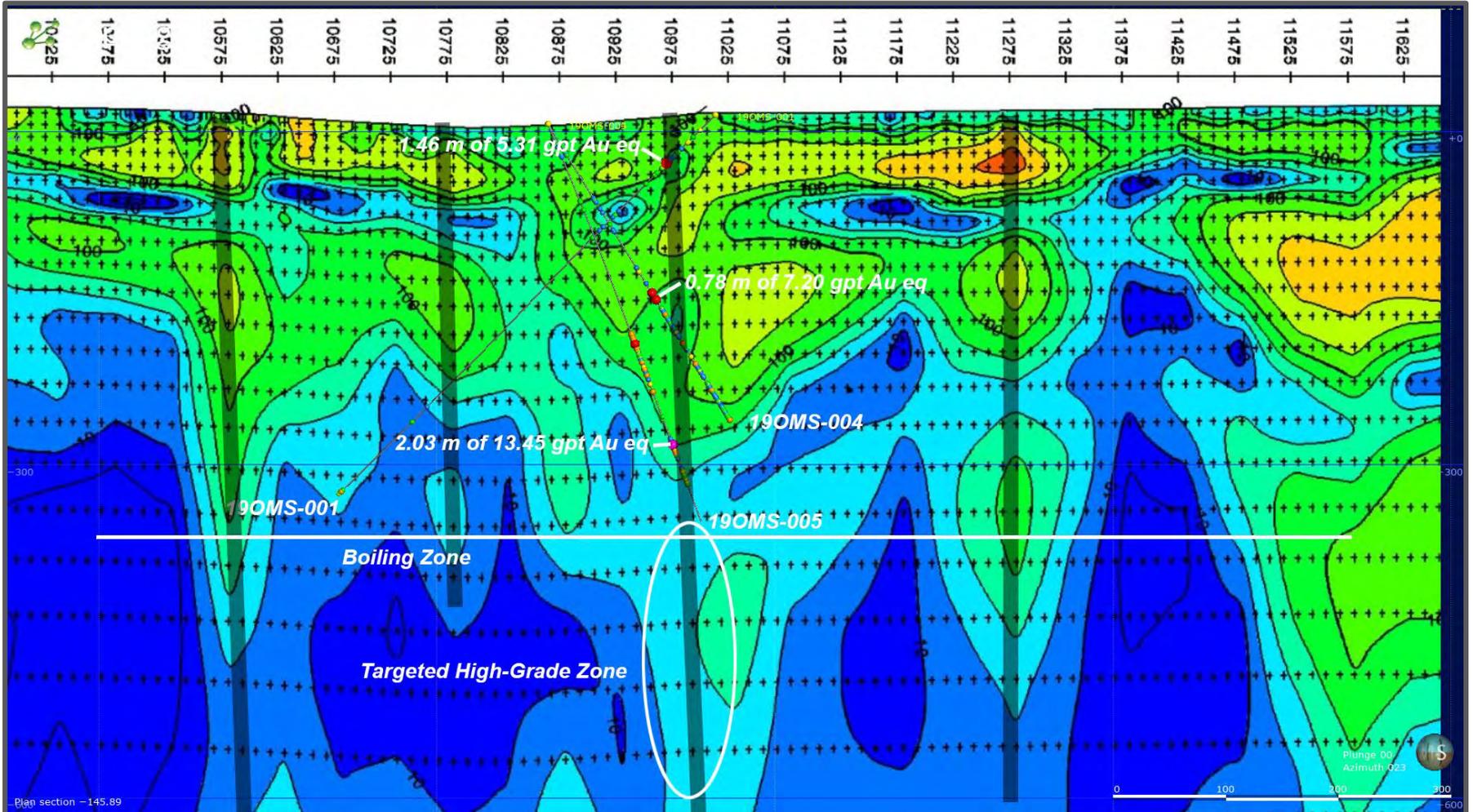
Irving thinks the prospective boiling horizon lies at depths of +350 m at Omu Sinter. The first eight holes did not adequately test this level of the system. With this CSAMT data, Irving can now sharp shoot the structural feeders at the boiling level.





# Omu Sinter Targeting

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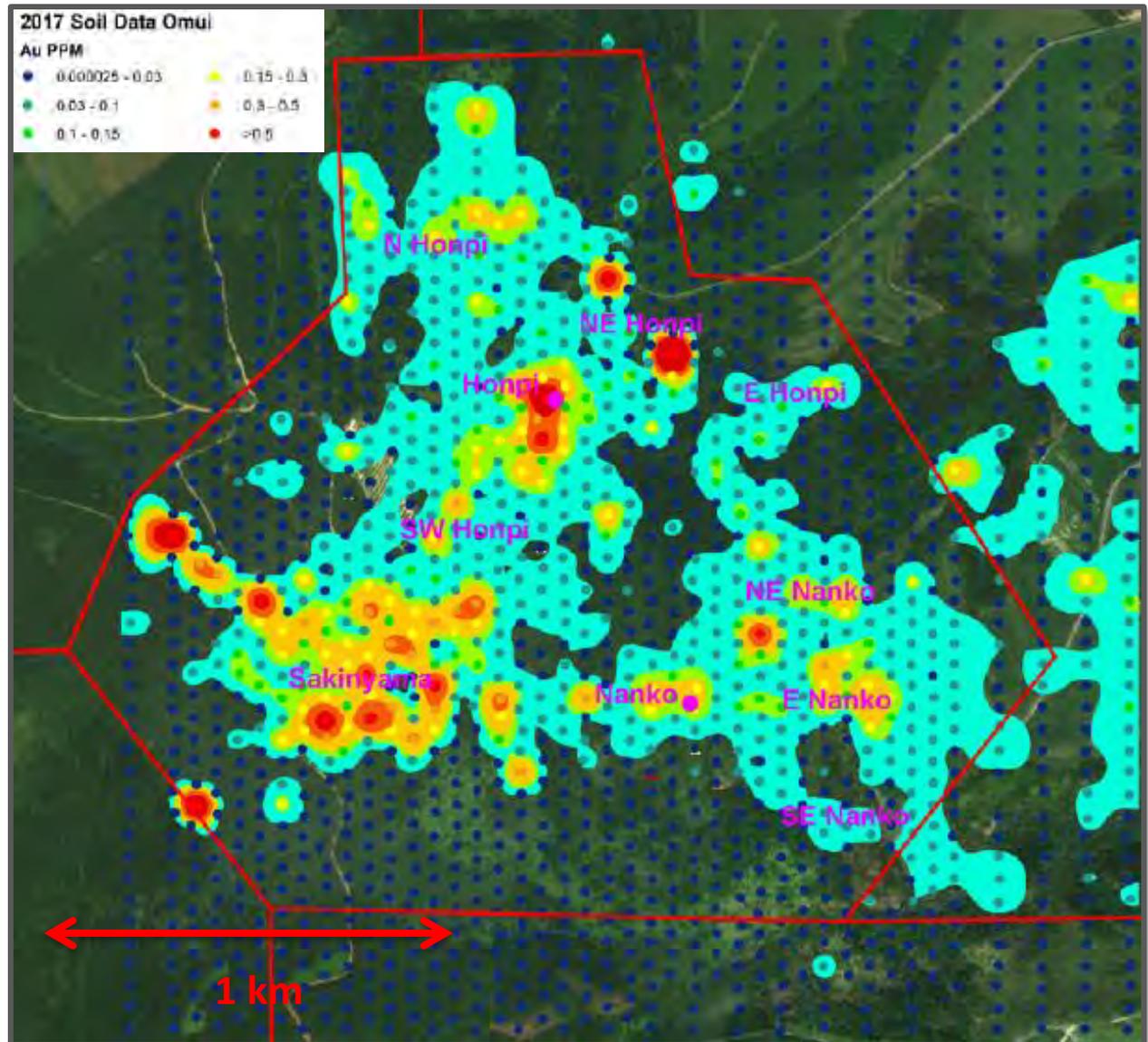




# Omui Soil Sampling Results

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- Soil gold anomalism is extensive at Omui. At Honpi and Nanko, many “hot spots” are evident, a likely indication that more veins have yet to be discovered.
- A robust soil gold anomaly has emerged at Sakinyama.
- Mineralization is open to the east.





## High-Grade Veins at Omui

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Vein textures including implosion breccias, poly-stage vein formation and cross-cutting veins suggest mineralization at Honpi formed in a dynamic near-surface setting. Honpi is the main vein mined at Omui. The big question is what is going on at depth?!



Implosion breccia, 480 gpt Au, 9,660 gpt Ag



Cross-cutting veins; un-assayed

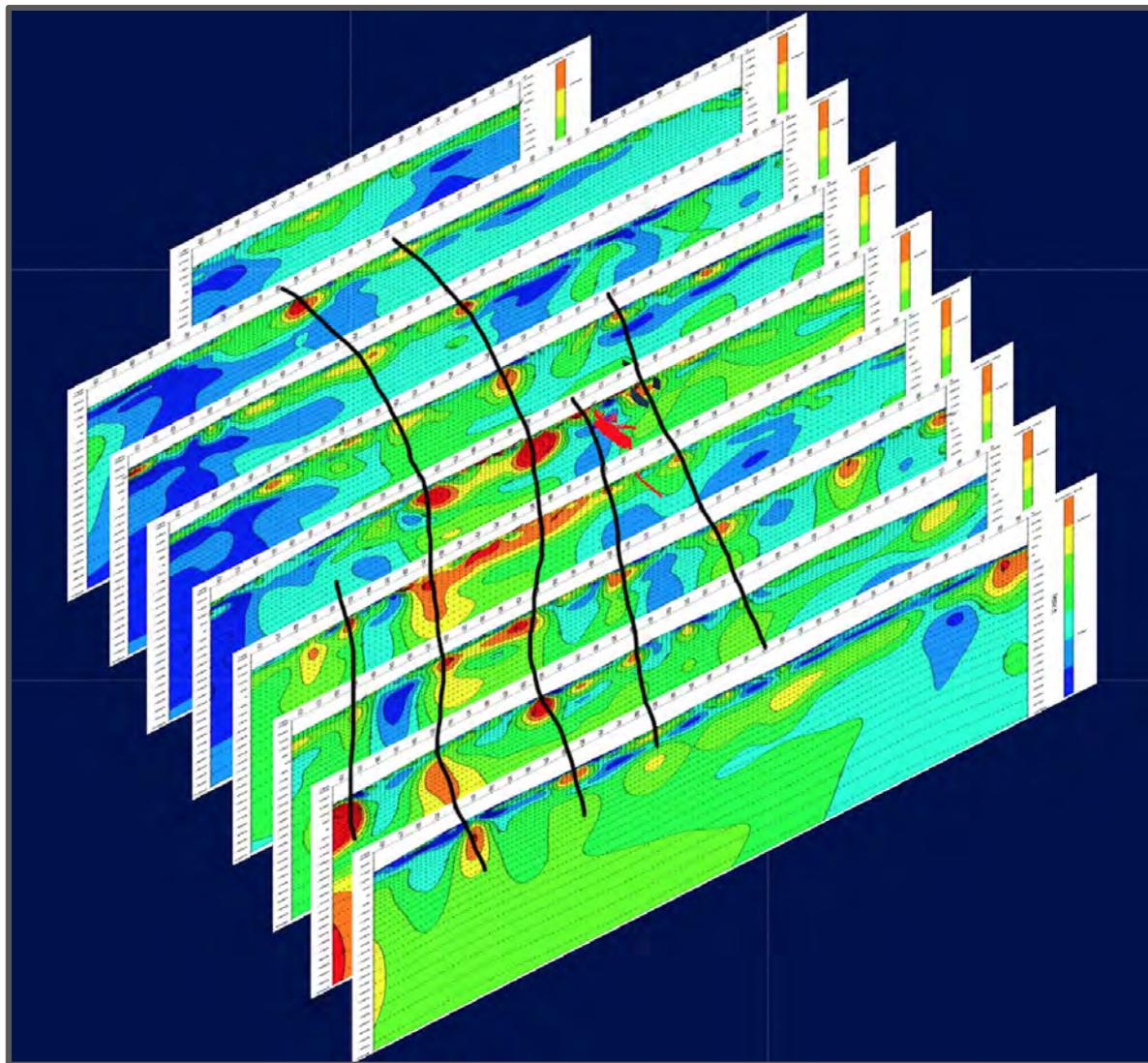


Banded vein+ginguro, 67.6 gpt Au, 1,060 gpt Ag



CSAMT at Omui shows a similar pattern to that seen at Omu Sinter. Lots of resistive structural zones are evident, the “plumbing” system that generated the high-grade veins.

Like Omu Sinter, boiling is believed to have occurred at +350 m at Omui. In late 2019, Irving drilled a series of shallow holes to test for near surface high grade, but it also drilled one deep hole testing the main resistive zone at the level of boiling, hole 19OMI-010. This hole encountered multiple quartz veins, most of which display ginguero and electrum, a very encouraging start. Assays from this hole are pending. Core from this hole will be on display at the Roundup Core Shed on January 20 and 21, 2020.





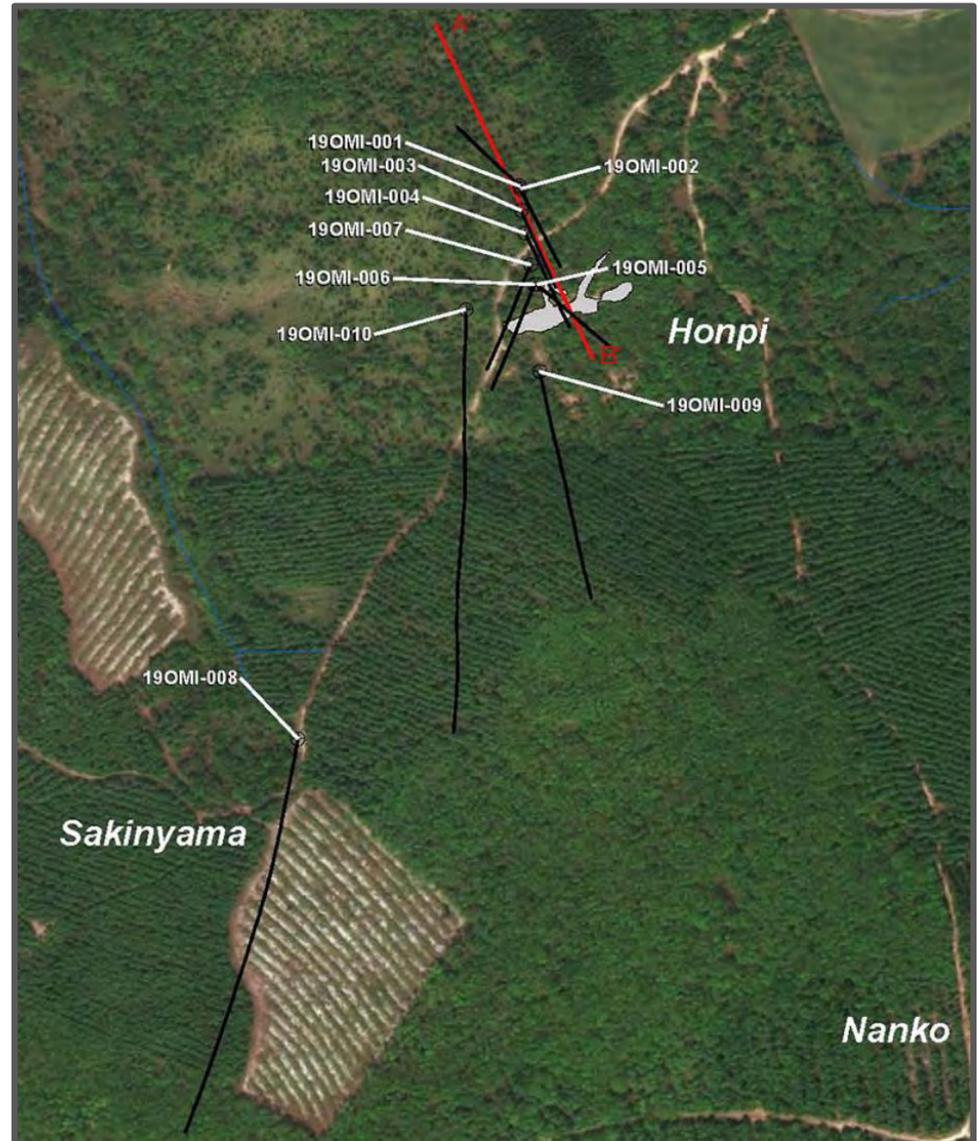
# Omui Drilling

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Holes 19OMI-001 through 19OMI-007 and 19OMI-009 tested for shallow high-grade veins.

Hole 19OMI-008 test the Sakinyama target.

Hole 19OMI-010 is the first deep test of the main vein zone at the boiling level. This hole encountered multiple veins with ginguero and electrum. Assays are awaited.





Results for holes 19OMI-001 and 19OMI-002 have returned. Assays for holes 19OMI-003 through 19OMI-010 are awaited.

Hole	From (m)	To (m)	Length (m)	Au (gpt)	Ag (gpt)	Au Eq (gpt)
19OMI-001	5.30	6.30	1.00	<b>19.25</b>	<b>27.50</b>	<b>19.57</b>
	45.92	47.00	1.08	4.38	6.15	4.45
<i>including</i>	45.92	46.50	0.58	6.34	8.52	6.44
19OMI-002	46.40	58.50	12.10	1.58	139.90	3.23
<i>including</i>	54.70	56.50	1.80	6.05	<b>808.18</b>	<b>15.56</b>
<i>including</i>	55.55	55.88	0.33	<b>28.90</b>	<b>4180.00</b>	<b>78.08</b>
	67.00	68.00	1.00	1.04	<b>326.68</b>	4.88
<i>including</i>	67.00	67.19	0.19	3.46	<b>1195.00</b>	<b>17.52</b>

Au Eq = Au (gpt) + Ag (gpt)/85



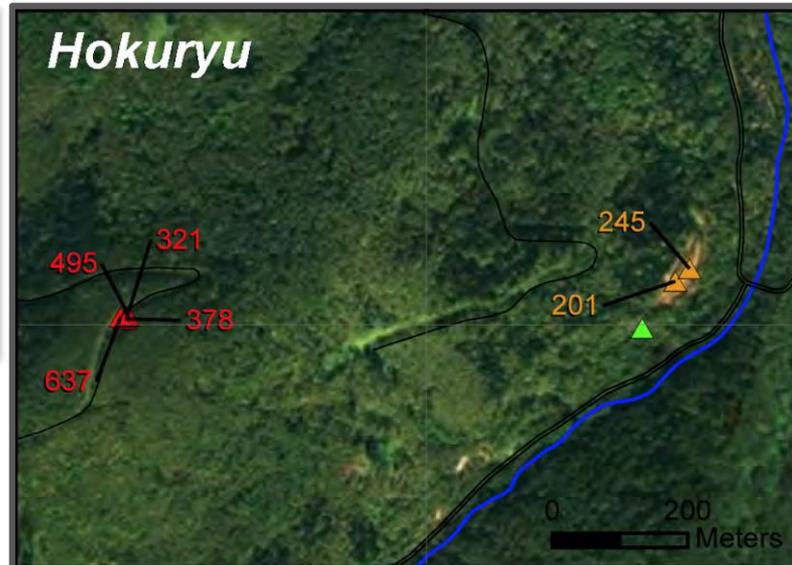
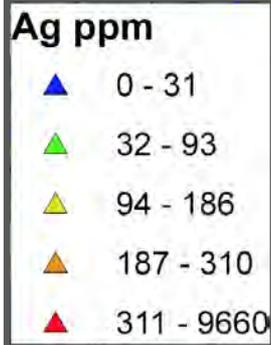
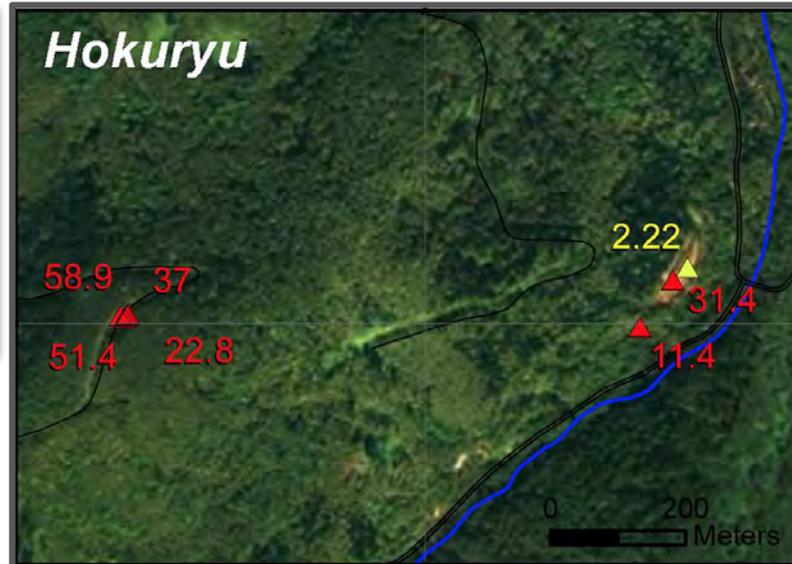
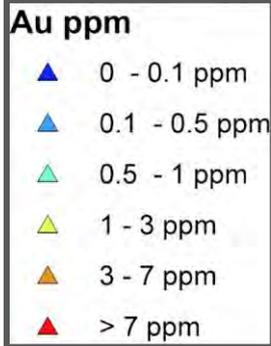
# High-Grade Veins at Hokuryu

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Samples collected from the Hokuryu mine site display high gold and silver grades.

Veins are well-banded with ginguero, and probably formed at a deeper level than those at the Omui mine site.

Areas around Hokuryu are virtually unexplored.



Hokuryu vein, 51.4 gpt Au, 637 gpt Ag



# Hokuryu Vein Material

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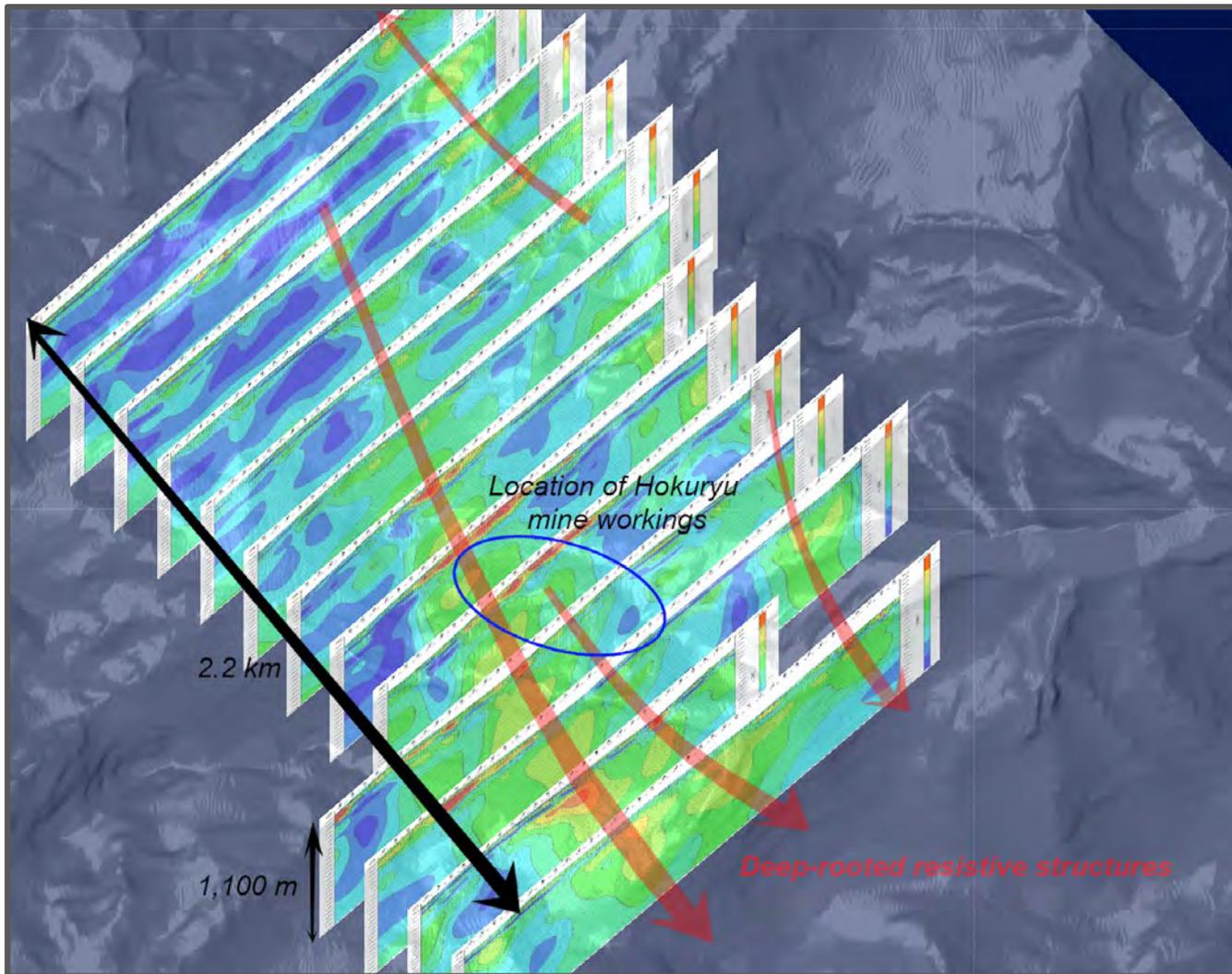




# Hokuryu CSAMT

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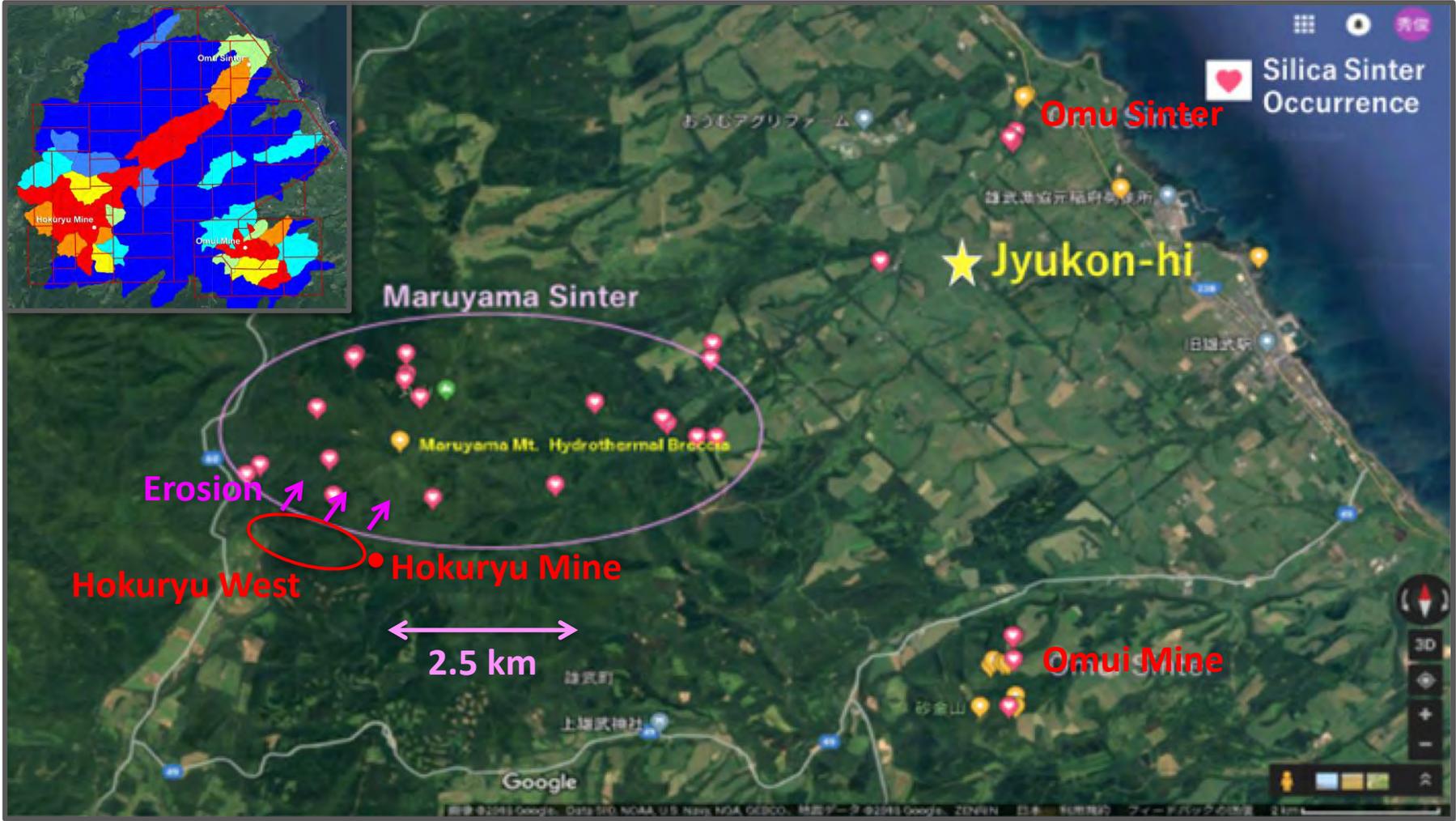
CSAMT at Hokuryu displays a prominent resistive structure trending E-SE and open to the east. Mine workings only occupy a small area, so Irving believes there are many more veins to be found here.





# Hokuryu North - Maruyama

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- **Irving's 2020 Omu exploration program includes:**
  - **Follow up drilling at Omu Sinter. (Winter and Spring)**
  - **Follow up drilling at Omui. (Spring through Fall)**
  - **Complete bulk sampling at the Omui mining license. Bulk sample will be shipped to Kushikino mill. (Summer and Fall)**
  - **Undertake further geophysics at Hokuryu. (Summer)**
  - **Expand soil sampling over greater Hokuryu. (Summer)**
  - **Expediting grant of Hokuryu prospecting licenses and drill permitting. (Spring and Summer)**
  - **First drilling at Hokuryu. (Fall)**



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Phone: 1-604-682-3234